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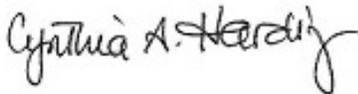
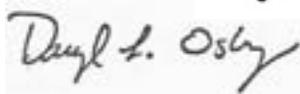
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February 23, 2016

TO: Each Supervisor

FROM: Cynthia A. Harding, M.P.H. 
 Daryl L. Osby 

SUBJECT: **ALISO CANYON STORAGE FACILITY GAS LEAK WEEKLY UPDATE**

On January 19, 2016, the Department of Public Health (DPH) and the Fire Department (LACoFD) submitted a memorandum on the natural gas leak at the Aliso Canyon Storage Facility and informed your Board that weekly updates would be provided on an ongoing basis. This is to provide the sixth written update from DPH and LACoFD, which is contained in Attachments 1 and 2.

Attachment 1 provides a summary of findings and tables providing the data collected under the Expanded Air Monitoring Plan as of February 20, 2016. This current round of weekly monitoring reflects data gathered after the gas leak was sealed by SoCalGas on February 11, 2016. Within this current round of monitoring, methane levels have remained below the lower explosive limit, and benzene levels remain below both the short-term and chronic exposure limits. Sulfur odorant levels remain detectable by the human nose, with continuing reports of short-term health effects in some individuals. Also included in Attachment 1 are tables providing cumulative data comparing chemical concentrations pre- and post-well control. This information is provided to the public in a report available on the DPH website, accessible at: <http://www.publichealth.lacounty.gov/media/gasleak/>.

DPH will continue to monitor the Porter Ranch area and analyze the data gathered under the Expanded Air Monitoring Plan for any unusual findings. If at any time DPH observes any data suggesting elevated exposures or health impacts, the DPH will take the action necessary to protect public health.

Attachment 2 provides an update from LACoFD on progress made under Unified Command, which was activated on January 22, 2016 and concluded on February 19, 2016. Following the conclusion of Unified Command, LACoFD continues to review the air monitoring samples

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collected by its network of sensors, monitor the re-population of Porter Ranch residents, responding to any associated emergent issues, and engage with local representatives and community groups. Further, LACoFD will follow-up as necessary on issues considered at the most recent AQMD hearing held on February 20, 2016.

DPH and LACoFD continue to work closely together to ensure a coordinated County response to this incident. The next weekly written update will be provided on February 29, 2016.

If you have any questions or need additional information, please let us know.

CAH
DLO

Attachments

c: Chief Executive Officer
County Counsel
Executive Officer, Board of Supervisors

**Los Angeles County Department of Public Health
Porter Ranch Expanded Air Monitoring Plan
Weekly Update of February 22, 2016**

Background

The Los Angeles County Department of Public Health (DPH) is implementing an Expanded Air Monitoring Plan to comprehensively evaluate air quality in the Porter Ranch area. This Plan is an ongoing effort of DPH, supported by multiple agencies engaged in air monitoring and data collection, including Los Angeles County Fire Department (LACFD), Southern California Gas (SCG), South Coast Air Quality Management District (AQMD), Los Angeles Unified School District (LAUSD), and California Air Resources Board (CARB).

Attached Tables 1-4 show the most recent week's data and cumulative air quality monitoring results for two types of samples being collected from three areas: Within the community, within the facility, and along the facility property line adjacent to the community. Tables 2-4 also summarize results separately for samples collected prior to well control (10/30 – 2/11) and after well control (2/11 – 2/16).

10-Minute Grab Samples: These samples are currently taken daily from 11 locations within the Porter Ranch community, and historically from 9 locations within the facility. Grab samples provide a snapshot of the chemical concentrations and more easily identifies peak levels.

12-Hour Integrated Samples: These samples are taken twice daily from six locations along the community/facility fence-line. They are collected from three locations within the facility (as of 1/12) and from three locations within the community (as of 1/29). This type of sample provides a complete picture of possible residential exposures to average chemical concentrations over the entire day.

Summary of Air Monitoring Results: Results show methane concentrations have decreased following well control on Thursday 2/11. Note the preliminary results shown in red in Table 1 are undergoing data validation.

Methane: Health protective levels for methane are based on the flammability limit. The most recent week (2/14-2/20) of methane results for grab samples collected in the community ranged from 2.2 parts per million (ppm) to 3.2 ppm. Following well control on 2/11, the 12-hour samples along the community/facility fence-line ranged from 2.2 ppm to 4.4 ppm; and 12-hour samples from within the community ranged from 2.2 ppm to 3.4 ppm. Following well control on 2/11, peak methane levels have decreased significantly, as shown in Figure 1. Since the beginning of the incident, community methane levels have been below the lower explosive limit of 50,000 ppm, and are not expected to cause any health effects. Recent methane levels measured since the flow of gas stopped on 2/11 have remained below 5 ppm (an action level that would prompt agencies to consider investigation of other sources of methane).

Benzene: The most recent week (2/14-2/20) of benzene results for grab samples collected in the community ranged from 0.1 ppb to 1.9 ppb, which are below the Office of Environmental Health Hazard Assessment (OEHHA) acute short-term (1-hour) exposure limit of 8 ppb. On Monday 2/15 and Wednesday 2/17, when maximum levels of 1.8 and 1.9 ppb were detected, results from other community locations ranged up to 0.4 and 0.3 ppb, respectively.

All grab sample measurements in the community to date have been below the OEHHA acute exposure limit of 8 ppb, and less than 1% of benzene levels measured within the facility perimeter have exceeded this limit. Following well control on 2/11, benzene detected in the 12-hour samples along the community/facility fence-line ranged from 0.04 to 0.2 ppb; and 12-hour samples from within the community ranged from 0.05 to 0.3 ppb. These levels are consistent with lower background benzene averages for the Los Angeles Air Basin, and continue to be substantially lower than the OEHHA chronic exposure limit of 1 ppb.

Sulfur Odorants: Throughout the community, air concentrations of sulfur odorants remain below the concentration able to be detected by instruments. However, sulfur odors detectable by the human nose remain throughout the community, with continuing reports of short-term health effects in some individuals. Reported symptoms include fatigue, nausea, dizziness, headaches, and eye/nose/throat irritation. There are no data to suggest long-term health risks at this exposure level.

Indoor Air Testing Survey

DPH has met with partner agencies to identify an appropriate protocol for the indoor testing of a representative sample of vacated homes. As noted above, there has been a marked reduction in outdoor methane levels after the flow of gas in the damaged well was stopped. The objective of the indoor air testing protocol under development is to provide additional assurance to returning residents that any residual gas within homes has also dissipated. DPH expects to have a draft of the protocol by February 25, 2016, and will then confer with State agency partners to gather input and support before initiating the indoor assessments. This level of cooperation among the county and state agencies involved in the air monitoring effort is essential for the proper collection and interpretation of data and to demonstrate to the public the integrity of the testing program.

Attachments

- Figure 1 Daily Community Peak Concentrations for the Week (February 1 – 16)
- Table 1 Daily Community Peak Concentrations for the Week (February 14 - 20)
- Table 2 Summary of Community Peak Concentrations: Pre- and Post- Well Control
- Table 3 Summary of 12-Hour Monitoring Within the Facility: Pre- and Post- Well Control
- Table 4 Summary of 12-Hour Monitoring Along Community/Facility Fence-line: Pre- and Post-Well Control
- Table 5 Summary of 12-Hour Monitoring Within the Community: Pre- and Post- Well Control

Figure 1. Daily Community Peak Methane Concentrations for February 1 – 16



Table 1. Daily Community Peak Concentrations for the Week (February 14 - 20)

Chemical*	Sun. 2/14	Mon. 2/15	Tues. 2/16	Wed. 2/17	Thurs. 2/18	Fri. 2/19	Sat. 2/20	Units
Methane	2.5	2.3	2.4	3.2	2.2	2.9	2.2	ppm
Benzene	0.59	1.8	0.12	1.9	0.12	0.28	0.47	ppb
t-Butyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ppb
Tetrahydrothiophene	ND	ND	ND	ND	ND	ND	ND	ppb

Note: Red text shows preliminary results that are undergoing data validation.

Table 2. Summary of Community Peak Concentrations: Pre- and Post-Well Control

Chemical*	Pre-/Post- Well Control**	Number Detected / Total Samples	% Detects	Community Range (Min – Max)	Units
Methane	Pre-	2018 / 2018	100%	0.2 - 231	ppm
	Post-	99 / 99	100%	1.8 - 5.3	ppm
Benzene	Pre-	965 / 2015	48%	0.05 - 5.6	ppb
	Post	60 / 99	61%	0.05 - 1.8	ppb
t-Butyl Mercaptan	Pre-	0 / 1939	0%	ND	ppb
	Post-	0 / 90	0%	ND	ppb
Tetrahydrothiophene	Pre-	0 / 1939	0%	ND	ppb
	Post-	0 / 90	0%	ND	ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

*Other volatile chemicals, hydrocarbons, and sulfur compounds are being tested and will be reported in this table if detected above background levels.

**Well control stopped the flow of gas on February 11; “pre-well control” represents results for air samples collected between October 30 through February 11, and “post-well control” represents results for air samples from February 12 through February 16.

Table 3. Summary of 12-Hour Monitoring Within Facility: Pre- and Post-Well Control

Chemical*	Pre-/Post- Well Control**	Number Detected / Total Samples	% Detects	Aliso Canyon Facility Range	Los Angeles County Background Range	Units
Methane	Pre-	144 / 189	100%	2.5 - 720	1.8 - 2.1 [†]	ppm
	Post-	24 / 24	100%	2.5 - 11		ppm
Benzene	Pre-	189 / 189	100%	0.06 - 8.4	0.1 - 1.8 ^{††}	ppb
	Post	23 / 24	96%	0.05 - 0.6		ppb
t-Butyl Mercaptan	Pre-	0 / 189	0%	ND	NA	ppb
	Post-	0 / 24	0%	ND		ppb
Tetrahydrothiophene	Pre-	0 / 189	0%	ND	NA	ppb
	Post-	0 / 24	0%	ND		ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

*Other volatile chemicals, hydrocarbons, and sulfur compounds are being tested and will be reported in this table if detected above background levels.

**Well control stopped the flow of gas on February 11; “pre-well control” represents results for air samples collected between October 30 through February 11, and “post-well control” represents results for air samples from February 12 through February 15.

[†]Hsu YK et al. 2010. Methane emissions inventory verification in southern California. Atmospheric Environment, 44:1-7.

^{††}MATES IV Study (South Coast Air Quality Management District) – range of 24-hour sample results for benzene across Los Angeles Air Basin.

Table 4. Summary of 12-Hour Monitoring Along Community/Facility Fence-line: Pre- and Post-Well Control

Chemical*	Pre-/Post-Well Control**	Number Detected / Total Samples	% Detects	Aliso Canyon Facility Range	Los Angeles County Background Range	Units
Methane	Pre-	376 / 376	100%	1.8 - 24	1.8 - 2.1 [†]	ppm
	Post-	48 / 48	100%	2.2 - 4.4		ppm
Benzene	Pre-	376 / 376	100%	0.1 - 0.4	0.1 - 1.8 ^{††}	ppb
	Post	47 / 48	98%	0.04 - 0.2		ppb
t-Butyl Mercaptan	Pre-	0 / 376	0%	ND	NA	ppb
	Post-	0 / 48	0%	ND	NA	ppb
Tetrahydrothiophene	Pre-	0 / 376	0%	ND	NA	ppb
	Post-	0 / 48	0%	ND	NA	ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

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^{††}MATES IV Study (South Coast Air Quality Management District) – range of 24-hour sample results for benzene across Los Angeles Air Basin.

Table 5. Summary of 12-Hour Monitoring Within the Community : Pre- and Post-Well Control

Chemical*	Pre-/Post-Well Control**	Number Detected / Total Samples	% Detects	Aliso Canyon Facility Range	Los Angeles County Background Range	Units
Methane	Pre-	81 / 81	100%	1.6 - 8.4	1.8 - 2.1 [†]	ppm
	Post-	24 / 24	100%	2.5 - 3.4		ppm
Benzene	Pre-	81 / 81	100%	0.05 - 0.5	0.1 - 1.8 ^{††}	ppb
	Post	24 / 24	100%	0.05 - 0.3		ppb
t-Butyl Mercaptan	Pre-	0 / 81	0%	ND	NA	ppb
	Post-	0 / 24	0%	ND		ppb
Tetrahydrothiophene	Pre-	0 / 81	0%	ND	NA	ppb
	Post-	0 / 24	0%	ND		ppb

ppm = parts per million; ppb = parts per billion; ND = non-detect

*Other volatile chemicals, hydrocarbons, and sulfur compounds are being tested and will be reported in this table if detected above background levels.

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^{††}MATES IV Study (South Coast Air Quality Management District) – range of 24-hour sample results for benzene across Los Angeles Air Basin.



COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

February 23, 2016

TO: EACH SUPERVISOR

FROM: DARYL L. OSBY, FIRE CHIEF [Handwritten signature]

ALISO CANYON UNIFIED COMMAND GAS LEAK-UPDATE

The purpose of this communiqué is to provide your Honorable Board with a follow-up to my last update provided to you on February 16, 2016. On Friday, February 19, 2016, Unified Command was dismantled; however, the Fire Department continues to carry out the following tasks:

- Review air monitoring samples collected by network of sensors.
Follow-up on last Saturday's AQMD hearing to address any new/existing issues that were identified.
Monitor the re-population of Porter Ranch residents; respond to any emergent issues.
Continue to track legislation drafted by various Federal and State agencies related to this matter.
Continue to engage with local representatives and community groups as necessary.

I will continue to keep your Board apprised of any significant advancements as they becomes available. If you have any questions, please contact me at (323) 881-6180 or your staff may contact Chief Deputy David R. Richardson Jr., Emergency Operations at (323) 881-6178.

DLO:aat

c: Sachi Hamai
Mary Wickham
Jim Jones
Sheila Williams
Cynthia Harding
Jeffery Gunzenhauser
Jeff Reeb
Each Board Deputy

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

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